



AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended): A heat conductive composite sheet comprising:

(a) a heat softening, heat conductive layer comprising a silicone resin and a heat conductive filler, wherein said silicone resin is at least one selected from the group consisting of:

$D^1_m T_p D^2_n$

wherein

D^1 represents a $(CH_3)_2SiO$ unit,

T represents a $(C_6H_5)SiO_{3/2}$ unit,

D^2 represents a $(CH_3)(CH_2=CH)SiO$ unit,

the molar ratio $(m+n)/p$ is within a range from 0.25 to 4.0, and

the molar ratio $(m+n)/m$ is within a range from 1.0 to 4.0;

$M_1 D^1_m T_p D^2_n$

wherein

M represents a $(CH_3)_3SiO_{1/2}$ unit,

D^1 represents a $(CH_3)_2SiO$ unit,

T represents a $(C_6H_5)SiO_{3/2}$ unit,

D^2 represents a $(CH_3)(CH_2=CH)SiO$ unit,

the molar ratio $(m+n)/p$ is within a range from 0.25 to 4.0,

the molar ratio $(m+n)/m$ is within a range from 1.0 to 4.0, and

the molar ratio $1/(m+n)$ is within a range from 0.001 to 0.1; and

$M_1 D^1_m Q_q D^2_n$

wherein

M represents a $(CH_3)_3SiO_{1/2}$ unit,

D¹ represents a (CH₃)₂SiO unit,

Q represents SiO_{4/2},

D² represents a (CH₃)(CH₂=CH)SiO unit,

the molar ratio (m+n)/q is within a range from 0.25 to 4.0,

the molar ratio (m+n)/m is within a range from 1.0 to 4.0, and

the molar ratio l/(m+n) is within a range from 0.001 to 0.1,

(b) a heat conductive silicone rubber layer comprising a heat conductive filler;

wherein at least the surface of the layer (a) opposite to the layer (b) is capable of melting at a temperature that ranges from 40°C to 100°C.

Claims 2-3 (Canceled):

Claim 4 (Previously Presented): The heat conductive composite sheet according to claim 1, wherein said heat conductive silicone rubber of said layer (b) comprises a cured product of an addition reaction curable silicone rubber composition comprising a heat conductive filler.

Claim 5 (Previously Presented): The heat conductive composite sheet according to claim 1, wherein said heat conductive silicone rubber of said layer (b) comprises a cured product of a condensation curable silicone rubber composition comprising a heat conductive filler.

Claim 6 (Previously Presented): The heat conductive composite sheet according to claim 1, wherein said heat conductive silicone rubber of said layer (b) is a cured product of a radical reaction curable silicone rubber composition comprising a heat conductive filler.

Claim 7 (Currently Amended): A process for producing a heat conductive composite sheet comprising:

(a) a heat softening, heat conductive layer formed of a composition comprising a silicone resin and a heat conductive filler, wherein said silicone resin is at least one selected from the group consisting of:

$D^1_m T_p D^2_n$

wherein

D^1 represents a $(CH_3)_2SiO$ unit,

T represents a $(C_6H_5)SiO_{3/2}$ unit,

D^2 represents a $(CH_3)(CH_2=CH)SiO$ unit,

the molar ratio $(m+n)/p$ is within a range from 0.25 to 4.0, and

the molar ratio $(m+n)/m$ is within a range from 1.0 to 4.0;

$M_1 D^1_m T_p D^2_n$

wherein

M represents a $(CH_3)_3SiO_{1/2}$ unit,

D^1 represents a $(CH_3)_2SiO$ unit,

T represents a $(C_6H_5)SiO_{3/2}$ unit,

D^2 represents a $(CH_3)(CH_2=CH)SiO$ unit,

the molar ratio $(m+n)/p$ is within a range from 0.25 to 4.0,

the molar ratio $(m+n)/m$ is within a range from 1.0 to 4.0, and

the molar ratio l/(m+n) is within a range from 0.001 to 0.1; and

$M_l D^1_m Q_q D^2_n$

wherein

M represents a $(CH_3)_3SiO_{1/2}$ unit,

D^1 represents a $(CH_3)_2SiO$ unit,

Q represents $SiO_{4/2}$,

D^2 represents a $(CH_3)(CH_2=CH)SiO$ unit,

the molar ratio $(m+n)/q$ is within a range from 0.25 to 4.0,

the molar ratio $(m+n)/m$ is within a range from 1.0 to 4.0, and

the molar ratio $l/(m+n)$ is within a range from 0.001 to 0.1, and

(b) a heat conductive silicone rubber layer comprising a heat conductive filler, said process comprising:

providing said heat conductive silicone rubber layer of (b),

optionally forming at least one intermediate layer on top of said heat conductive silicone rubber layer of (b), and

forming a layer of said composition on top of said heat conductive silicone rubber layer of (b) or, if said intermediate layer is present, on top of the intermediate layer;

wherein at least the surface of the layer (a) opposite to the layer (b) is capable of melting at a temperature that ranges from 40°C to 100°C.

Claim 8 (Currently Amended): A process for producing a heat conductive composite sheet comprising:

(a) a heat softening, heat conductive layer comprising a silicone resin and a heat conductive filler, wherein said silicone resin is at least one selected from the group consisting of:

$D^1_m T_p D^2_n$

wherein

D^1 represents a $(CH_3)_2SiO$ unit,

T represents a $(C_6H_5)SiO_{3/2}$ unit,

D^2 represents a $(CH_3)(CH_2=CH)SiO$ unit,

the molar ratio $(m+n)/p$ is within a range from 0.25 to 4.0, and

the molar ratio $(m+n)/m$ is within a range from 1.0 to 4.0;

$M_1 D^1_m T_p D^2_n$

wherein

M represents a $(CH_3)_3SiO_{1/2}$ unit,

D^1 represents a $(CH_3)_2SiO$ unit,

T represents a $(C_6H_5)SiO_{3/2}$ unit,

D^2 represents a $(CH_3)(CH_2=CH)SiO$ unit,

the molar ratio $(m+n)/p$ is within a range from 0.25 to 4.0,

the molar ratio $(m+n)/m$ is within a range from 1.0 to 4.0, and

the molar ratio $1/(m+n)$ is within a range from 0.001 to 0.1; and

$M_1 D^1_m Q_q D^2_n$

wherein

M represents a $(CH_3)_3SiO_{1/2}$ unit,

D^1 represents a $(CH_3)_2SiO$ unit,

Q represents $SiO_{4/2}$,

D² represents a (CH₃)(CH₂=CH)SiO unit,

the molar ratio (m+n)/q is within a range from 0.25 to 4.0,

the molar ratio (m+n)/m is within a range from 1.0 to 4.0, and

the molar ratio l/(m+n) is within a range from 0.001 to 0.1, and

(b) a heat conductive silicone rubber layer comprising a heat conductive filler, said process comprising:

providing said heat softening, heat conductive layer comprising a silicone resin and a heat conductive filler of (a),

forming a layer of a liquid, curable silicone rubber composition comprising a heat conductive filler on top of said heat softening, heat conductive layer of (a), and

curing said composition to form said heat conductive silicone rubber layer of (b);

wherein at least the surface of the layer (a) opposite to the layer (b) is capable of melting at a temperature that ranges from 40°C to 100°C.

Claim 9 (Original): The process according to claim 8, wherein said liquid, curable silicone rubber composition is an addition reaction curable silicone rubber composition.

Claim 10 (Original): The process according to claim 8, wherein said liquid, curable silicone rubber composition is a condensation curable silicone rubber composition.

Claim 11 (Currently Amended): A process for producing a heat conductive composite sheet comprising:

(a) a heat softening, heat conductive layer comprising a silicone resin and a heat conductive filler, wherein said silicone resin is at least one selected from the group consisting of:

$D^1_m T_p D^2_n$

wherein

D^1 represents a $(CH_3)_2SiO$ unit,

T represents a $(C_6H_5)SiO_{3/2}$ unit,

D^2 represents a $(CH_3)(CH_2=CH)SiO$ unit,

the molar ratio $(m+n)/p$ is within a range from 0.25 to 4.0, and

the molar ratio $(m+n)/m$ is within a range from 1.0 to 4.0;

$M_l D^1_m T_p D^2_n$

wherein

M represents a $(CH_3)_3SiO_{1/2}$ unit,

D^1 represents a $(CH_3)_2SiO$ unit,

T represents a $(C_6H_5)SiO_{3/2}$ unit,

D^2 represents a $(CH_3)(CH_2=CH)SiO$ unit,

the molar ratio $(m+n)/p$ is within a range from 0.25 to 4.0,

the molar ratio $(m+n)/m$ is within a range from 1.0 to 4.0, and

the molar ratio $l/(m+n)$ is within a range from 0.001 to 0.1; and

$M_l D^1_m Q_q D^2_n$

wherein

M represents a $(CH_3)_3SiO_{1/2}$ unit,

D^1 represents a $(CH_3)_2SiO$ unit,

Q represents $SiO_{4/2}$,

D² represents a (CH₃)(CH₂=CH)SiO unit,

the molar ratio (m+n)/q is within a range from 0.25 to 4.0,

the molar ratio (m+n)/m is within a range from 1.0 to 4.0, and

the molar ratio 1/(m+n) is within a range from 0.001 to 0.1, and

(b) a heat conductive silicone rubber layer comprising a heat conductive filler, said process comprising:

subjecting a heat softening, heat conductive sheet comprising a silicone resin and a heat conductive filler, and a heat conductive silicone rubber sheet comprising a heat conductive filler to thermocompression bonding together;

wherein at least the surface of the layer (a) opposite to the layer (b) is capable of melting at a temperature that ranges from 40°C to 100°C.

Claim 12 (Canceled):

Claim 13 (Previously Presented): The heat conductive composite sheet according to claim 1, wherein at least the surface of the heat softening, heat conductive layer is capable of melting at a temperature that ranges from 40°C to 90°C.

Claim 14 (New): A heat conductive composite sheet comprising:

(a) a heat softening, heat conductive layer comprising a silicone resin and a heat conductive filler, wherein said silicone resin comprises a polymer comprising a silicone resin containing RSiO_{3/2} units, but containing no R₂SiO units, and an polydiorganopolysiloxane with a viscosity at 25°C of at least 100 Pa·s comprised of R₂SiO units and terminal R₃SiO_{1/2}

units wherein in the formulas R each represent an unsubstituted or substituted hydrocarbon group of 1 to 10 carbon atoms, and

(b) a heat conductive silicone rubber layer comprising a heat conductive filler;
wherein at least the surface of the layer (a) opposite to the layer (b) is capable of melting at a temperature that ranges from 40°C to 100°C.

Claim 15 (New): The heat conductive composite sheet according to claim 14, wherein said heat conductive silicone rubber of said layer (b) comprises a cured product of an addition reaction curable silicone rubber composition comprising a heat conductive filler.

Claim 16 (New): The heat conductive composite sheet according to claim 14, wherein said heat conductive silicone rubber of said layer (b) comprises a cured product of a condensation curable silicone rubber composition comprising a heat conductive filler.

Claim 17 (New): The heat conductive composite sheet according to claim 14, wherein said heat conductive silicone rubber of said layer (b) is a cured product of a radical reaction curable silicone rubber composition comprising a heat conductive filler.

Claim 18 (New): A process for producing a heat conductive composite sheet comprising:

(a) a heat softening, heat conductive layer formed of a composition comprising a silicone resin and a heat conductive filler, wherein said silicone resin comprises a polymer comprising a silicone resin containing $RSiO_{3/2}$ units, but containing no R_2SiO units, and a polydiorganopolysiloxane with a viscosity at 25°C of at least 100 Pa·s comprised of R_2SiO

units and terminal $R_3SiO_{1/2}$ units wherein in the formulas R each represent an unsubstituted or substituted hydrocarbon group of 1 to 10 carbon atoms, and

(b) a heat conductive silicone rubber layer comprising a heat conductive filler, said process comprising:

providing said heat conductive silicone rubber layer of (b),

optionally forming at least one intermediate layer on top of said heat conductive silicone rubber layer of (b), and

forming a layer of said composition on top of said heat conductive silicone rubber layer of (b) or, if said intermediate layer is present, on top of the intermediate layer;

wherein at least the surface of the layer (a) opposite to the layer (b) is capable of melting at a temperature that ranges from 40°C to 100°C.

Claim 19 (New): A process for producing a heat conductive composite sheet comprising:

(a) a heat softening, heat conductive layer comprising a silicone resin and a heat conductive filler, wherein said silicone resin comprises a polymer comprising a silicone resin containing $RSiO_{3/2}$ units, but containing no R_2SiO units, and an polydiorganopolysiloxane with a viscosity at 25°C of at least 100 Pa·s comprised of R_2SiO units and terminal $R_3SiO_{1/2}$ units wherein in the formulas R each represent an unsubstituted or substituted hydrocarbon group of 1 to 10 carbon atoms, and

(b) a heat conductive silicone rubber layer comprising a heat conductive filler, said process comprising:

providing said heat softening, heat conductive layer comprising a silicone resin and a heat conductive filler of (a),

forming a layer of a liquid, curable silicone rubber composition comprising a heat conductive filler on top of said heat softening, heat conductive layer of (a), and curing said composition to form said heat conductive silicone rubber layer of (b); wherein at least the surface of the layer (a) opposite to the layer (b) is capable of melting at a temperature that ranges from 40°C to 100°C.

Claim 20 (New): The process according to claim 19, wherein said liquid, curable silicone rubber composition is an addition reaction curable silicone rubber composition.

Claim 21 (New): The process according to claim 19, wherein said liquid, curable silicone rubber composition is a condensation curable silicone rubber composition.

Claim 22 (New): A process for producing a heat conductive composite sheet comprising:

(a) a heat softening, heat conductive layer comprising a silicone resin and a heat conductive filler, wherein said silicone resin comprises a polymer comprising a silicone resin containing $RSiO_{3/2}$ units, but containing no R_2SiO units, and an polydiorganopolysiloxane with a viscosity at 25°C of at least 100 Pa·s comprised of R_2SiO units and terminal $R_3SiO_{1/2}$ units wherein in the formulas R each represent an unsubstituted or substituted hydrocarbon group of 1 to 10 carbon atoms, and

(b) a heat conductive silicone rubber layer comprising a heat conductive filler, said process comprising:

subjecting a heat softening, heat conductive sheet comprising a silicone resin and a heat conductive filler, and a heat conductive silicone rubber sheet comprising a heat conductive filler to thermocompression bonding together;

wherein at least the surface of the layer (a) opposite to the layer (b) is capable of melting at a temperature that ranges from 40°C to 100°C.

Claim 23 (New): The heat conductive composite sheet according to claim 14, wherein at least the surface of the heat softening, heat conductive layer is capable of melting at a temperature that ranges from 40°C to 90°C.

SUPPORT FOR THE AMENDMENTS

Claims 2 and 3 have been canceled.

Claim 12 was previously canceled.

Claims 1, 7, 8, and 11 have been amended.

Claims 14-23 have been added.

Support for the amendment to Claims 1, 7-8, and 11 is provided by original Claims 1, 2, and 12, as well as the specification at page 6, line 23 to page 7, line 17. New Claims 14-23 are supported by original Claims 1 and 3-13, as well as the specification at page 4, line 32 to page 5, line 2 and page 5, line 31 to page 6, line 2.

No new matter is believed to be added upon entry of the amendment.